



Hamburg: Capitalising on its entrepreneurs





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Over the years, Hamburg has developed a strong digital entrepreneurship culture. This is demonstrated by the fact that many start-ups originally from Hamburg (e.g. Facelift and Xing) have become known worldwide and digital giants have chosen Hamburg as the location for their headquarters in Germany. Nevertheless, in order to truly transform Hamburg into the “Smart and Digital Community” as wished for, all stakeholders who have embarked on the digitalization journey will need to learn to work together despite their diverging interests.

1

Problem statement

An enrooted digital culture

Over the years, Hamburg has developed a strong digital entrepreneurship culture. This is demonstrated by the fact that many start-ups originally from Hamburg (e.g. Facelift and Xing) have become known worldwide and digital giants have chosen Hamburg as the location for their German headquarters.

Hamburg’s business soundness is reflected in many recent rankings. For instance, the KfW Start-up Monitor 2015 ranks Hamburg with the second highest start-up rate in the country, with an average start-up rate of 2.36% (share of new entrepreneurs as a proportion of the population aged 18 to 64).¹

Between 2012 and 2014, Berlin and Hamburg remained at the top of the list with the highest start-up rates, while Hamburg further closed the gap with the frontrunner Berlin.

2nd highest start-up
rate in Germany



In Hamburg, the
share of new entrepreneurs as
a proportion of the population
aged 18 to 64 reaches **2.36%**

A higher than average innovation performance

According to the European Commission’s Regional Innovation Scoreboard (RSI) for 2014, Hamburg’s innovation performance was higher than average for the EU and it is therefore one of the 34 Regional Innovation Leader regions out of the 190 European regions analysed in the Scoreboard.²

More specifically, Hamburg’s particular strengths in the RIS 2014 were SMEs introducing product or process innovations (0.917), SMEs introducing marketing or organisational innovations (0.768), and employment in knowledge-intensive activities (0.735), while specific weaknesses were identified with regard to innovative SMEs collaborating with others (0.401), EPO patent applications (0.378), and non-R&D innovation expenditure (0.316).

A recognised quality of life

Forests, recreational and green areas make up 16.7% of Hamburg’s municipal area and it was crowned European Green Capital in 2011 (European Commission – DG Environment), and it is no surprise that Hamburg is regularly ranked as one of the top places for quality of life in benchmarks (e.g. Mercer 2014, XING 2013, YouGov 2013).³

An early digitalisation process involving all stakeholders

Hamburg’s digitalisation process started in the mid ‘90s and affected the various business clusters differently. In the early 2000s, Hamburg’s Parliament and State Government drafted a holistic visionary strategy to digitise the city centre and the entire metropolitan region, connecting government, port, business, citizenry, healthcare, academia and public safety, while involving local businesses in every step of the digitalisation process.

The futuristic Seatropolis

Over the years, Hamburg has consolidated its vision of what it aims to become: not only a modernised smart and digital city, but also a “Smart and Digital Community” or, as some call it, a futuristic Seatropolis, because of its geographical position.

“Already a pioneer in its use of technology, Hamburg is fast becoming the first true Seatropolis because of collaborative leadership that understands the economic and quality-of-life value that can be realized from the Internet of Everything” – Wim Elfrink, Cisco Vice President Industry Solutions

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Supporting the creative industry

In addition, the city's dynamic and robust business environment has accelerated Hamburg's digital transformation. It is also known as "Gamecity", with businesses linked to entertainment software and computer games booming in both the city centre and its metropolitan region.

In addition, the city is deeply involved in the digital film sector, promoting new TV trends as well as Web TV, video on demand and mobile TV.

According to the City of Hamburg website, the city's media, IT and telecommunications industry employs 110,000 people in some 23,000 companies, making the city one of Europe's leading MITT hubs.⁴

Fulfilling its digital potential

In 2011, in light of its digital potential, the Senate of Hamburg launched the vision "We are creating modern Hamburg", later included in the 2015 Hamburg Digital City Strategy.⁵

It is allocating EUR 3.7 million from the budgets of the Ministry of Science and Research and the Senate Chancellery until the end of 2016. A Digital City Control Centre is foreseen to coordinate and monitor the digital processes and projects taking place in Hamburg.

As described in the section below, the Strategy aims to bundle processes, enhance digital engagement and access, improve infrastructure and support the digital economy.

2

Realised benefits and new opportunities

Digital technology is changing the way the city of Hamburg delivers services. In particular, open data and the IoT are improving the services offered by the city, while creating opportunities for businesses, including local start-ups.

The main benefits opened up with the digitalisation of the city of Hamburg concern: education, in both schools and universities, infrastructures and smart city solutions, as well as citizens' privacy.

Hamburg's Digital City Strategy"

Digital technology is changing the way the city of Hamburg delivers services and the way citizens and businesses engage with the public sector and each other.

For instance, the popularity of smartphones and tablets, the increasing use of social media and the growth of data are all creating opportunities to improve the city's public services, expand its digital infrastructure and strengthen Hamburg's digital economy, while opening up extensive opportunities for local businesses, particularly start-ups.

To help drive this forward, the Hamburg Senate has adopted a "Digital City Strategy". This strategy has three main focus areas: education; infrastructure and smart city solutions; security and privacy.

Education: a new digital approach

The digital approach will complement traditional classroom teaching with new tools based on digital technologies. In this framework, the city is expected to play a leading role in digital teaching, making technical innovations one of the main drivers of Hamburg's digital transformation.

One concrete example is the digitisation of Hamburg's university, launched by the Senate, with the Hamburg Open Online University as a core project.

Infrastructure and smart city solutions

Projects in this area will range from digital management to smart transport systems and port organisation (smartPORT), digital geo data, educational and cultural activities, and implementing the digital infrastructure required for sustainable energy supplies (SmartEnergy).

The city of Hamburg aims to create an environment that enables greater mobility, efficiency, safety and sustainability. Both local businesses and the public administration are therefore pushing for the construction of the infrastructure needed to achieve these goals.

Security and privacy

The question of trust is key for the successful uptake of the digital strategy. Citizens must have the confidence needed for all the projects within the Strategy. Several projects are thus pushed by the Senate to ensure IT security and data protection.



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Internet of things

Other opportunities deriving from the digitalisation process and boosting local digital entrepreneurship are related to the Internet of Things (IoT); in the case of Hamburg, this implies:

- A shift from products to services: worldwide, the number of wirelessly connected products is expected to rise from 5 billion today to 21 billion by 2020. As it is home to large numbers of technological and media businesses, Hamburg is expected to be one of the leading cities in such a shift;

- Development of platforms: in the near future, successful companies will no longer be those that make the best products, but those that gather the best data and combine them to offer the best digital services. Again, Hamburg is expected to play a crucial role in this development, given its digital potential.

3

Drivers and obstacles

The political nature of the city of Hamburg has been crucial to its digitalisation process. As a federal city-state, the city has constant and direct links with the political class. Moreover, a strong and diversified economic structure, together with a vibrant start-up ecosystem, has also paved the way for the city's digitalisation.

However, in its path to digitalisation, Hamburg has also faced some obstacles. The variety of the stakeholders involved in such a process, the disruption of the public sector and strict privacy and data protection laws have been the main challenges faced by local businesses with the city's digital transformation.

A

Drivers

Hamburg as a city-state

Hamburg's status as a federal city-state has been crucial to its digitalisation, along with its constant, direct links with its political system, while its economic structure is more prosperous than other German cities. As stated in the KfW Start-Up Monitor 2015, the proportion of new entrepreneurs involved in freelance activities is disproportionately high in Hamburg (46% in 2014) compared with the German average and second only to Berlin (51% in 2014), and this is connected to the fact that they are attractive centres for the media and IT sectors.

Start-ups and digital giants

A strong and diversified economic structure, together with a vibrant start-up ecosystem, has played a crucial role in Hamburg's digital transformation. Many start-ups from Hamburg have gone on to become international players: InnoGames, Bigpoint, Facelift, Goodgame Studios, Jimdo, myTaxi and Xing to name just a few, and start-ups such as Dreamlines, Kreditech, Protonet, Stuffle and Sonormed are continuing with this success story. In this context, it is certainly no coincidence that leading internet giants such as Google, Facebook, Twitter, Hootsuite and Yelp have chosen Hamburg as the location for their German headquarters.

Key stakeholders

A proactive public sector

In Hamburg's digital transformation, many stakeholders have played a crucial role. As mentioned above, the public sector has actively supported the city's digitalisation from the outset.

In particular, the Departmental Authority for Economic Affairs, Transport and Innovation has been actively involved in the city's transformation while also engaging local businesses in the processes, creating an equal partner ecosystem.

A responsive private sector

The city's Senate is another key stakeholder in the framework of Hamburg's digitalisation process, as it is the leader of the nextMedia.Hamburg initiative, as mentioned in the section below.⁶ Alongside the public sector, local businesses have also played a crucial role.

Start-ups, big companies and associations (e.g. Cisco, Betahaus, Hamburg@work, Deutsche Telekom) have all been involved in the city's digitalisation process. In addition to the stakeholders mentioned above, digital giants based in Hamburg (e.g. Facebook and Google) are deeply involved in the city's digitalisation process.

Memorandum of Understanding

Building on the IoT and innovative technologies, Hamburg aims to improve the quality of life for its residents by enabling greater mobility, efficiency, safety and sustainability. To achieve this, leaders from the City of Hamburg and Cisco signed a Memorandum of Understanding (MoU) in April 2014.

This MoU followed the Smart City Summit, hosted in Hamburg in December 2013, where representatives of the public sector and academia, as well as local and international companies, came together to define a Smart City Framework for Hamburg.

The MoU foresees the creation of specific pilot projects around smart traffic, smart street lighting, infrastructure sensing and remote citizen services.⁷

"Digitalisation is an ongoing process. There is no end, we have to learn to deal with it" – Carsten Brosda, Commissioner of the Free and Hanseatic City of Hamburg for Media

Key initiatives

In Hamburg's digital transformation, many stakeholders have played a crucial role. As mentioned above, the public sector has actively supported the city's digitalisation from the outset.

nextMedia.Hamburg

Under the leadership of Hamburg's Senate, nextMedia.Hamburg is one of the main regional initiatives for Hamburg's digital and media industries.

It is jointly funded by the Senate of the Free and Hanseatic City of Hamburg, the Hamburg@work⁸ association and the HWF Hamburg Business Development Corporation, as well as committed businesses and individuals.

The nextMedia.Hamburg initiative sees itself as a driving force for innovative technologies and their use. As part of its role, the initiative is committed to expanding and supporting the regional network of media and digital industries.⁹

This is especially true with regard to the development of new business models for securing and expanding Hamburg's position as a leading media location.

Launched in early 2014, nextMedia.Hamburg is further strengthening the innovation culture in Hamburg and improving the framework conditions for start-up businesses in the Hamburg Metropolitan Region.

To this end, the nextMedia.StartHub is the first port of call for businesses from the digital economy and serves as a central point of contact for the nextMedia.Hamburg initiative.

By connecting the start-up scene with established stakeholders from the regional media sector, the StartHub aims to actively support the digitisation process for the content industry, thereby strengthening Hamburg's prime position as an innovative media location over the long term.

Key infrastructures

Hamburg is a clear example of a digital city and this is also evident in its infrastructures, with smartPORT and HafenCity as the most important initiatives

SmartPORT

Covering an area of 7,200 hectares, the Port of Hamburg handles an average of around 10,000 ships and nine million cargo containers every year. It is a major employer in the region, directly and indirectly providing around 156,000 jobs.¹¹

Many smart and digital solutions have been implemented in Hamburg's port. The most innovative is smartPORT logistics (SPL), an SAP Connected Logistics-based solution that manages traffic management IT solutions, interconnecting the port's businesses, partners and customers.

Besides being a smart city solution, the transformation of Hamburg's port has helped drive the city's digital entrepreneurship.

As highlighted by the Hamburg Port Authority, the port's smart, digital transformation has acted as a springboard for many local businesses, especially start-ups, and has offered several business opportunities for enterprises across the region.¹²

More specifically, local businesses that have a keen interest in effective transport management have actually moved their premises to be close to the port, creating an environment that brings together many businesses working in different fields, but towards the same goal: innovation, particularly in the digital domain.

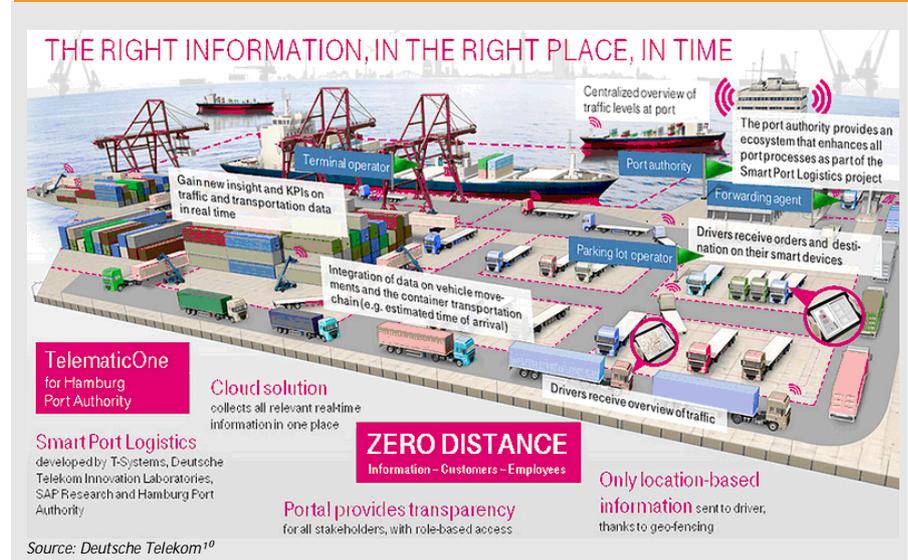
HafenCity

Hamburg's digital vocation can also be seen with the development of HafenCity, transforming an old and largely unused industrial sector across from the port into an IoT-powered "City within a City".¹³

The transformation of the site started in 2001 and today the area has expanded the city by around 40%, adding 6,000 residences, more than 500 businesses (the majority of which are start-ups), 45,000 jobs and around 100,000 visitors each day, according to Cisco.¹⁴

HafenCity combines the concepts of smart and digital cities, since its core pillars are sustainability, urban mobility, digital infrastructure and co-working environments, and each of them have been planned with the IoT embedded.

Figure 1: SmartPORT - Greater efficiency for truck and container movements



The area continues to exert a growing pull on businesses, since many big companies, as well as small and medium enterprises, including start-ups, have decided to relocate to this part of the city.

Media and logistics businesses are strongly represented here, followed by commerce, financial services, IT services and management consultants.

Hamburg as a city has benefited from bringing all these businesses together, with the constant exchange of business opportunities further enhancing its entrepreneurial culture, especially in the ICT field, as a vast majority of the businesses based in HafenCity work in the digital domain.

B Obstacles

Diverse stakeholders involved in the process

Many diverse stakeholders (e.g. public sector, academia, big companies, start-ups) have been involved in Hamburg's digital transformation.

Bringing all these players together and working towards different goals, while moving in the same direction, has been challenging at each stage in Hamburg's digitalisation process.

Disruption hampering digitalization

According to the experience of the city's Senate, other obstacles in the path towards digitalisation have included episodes of disruption combined with a very short innovation cycle.

By definition, innovation cycles are fast and short, so it is vital to take action before changes may actually be seen in order to achieve digital change and innovation.

However, this is often not reflected in the way that the public sector works, as bureaucracy and administrative burdens tend to slow down the speed of actions linked to the innovation cycle. In such a framework, disruptions in the public sector have hampered the digitalisation process.

Privacy and data protection as a challenge for digitalization

Compared with other countries, Germany has stringent privacy and data protection laws (*Bundesdatenschutzgesetz*), which several businesses have come up against, as they often limit innovation.

This means that at each stage in their work, local businesses need to ensure compliance with these stringent laws. On the other side of the coin, such laws, if properly interpreted, can represent opportunities for local businesses, as they can trigger and foster innovation.

4 Lessons learnt

Gaining the public sector's full support is crucial for a city looking to embark on its digital transformation. On the other hand, such a transformation also needs to be supported by local businesses, making them aware of the city's digital needs and supporting the transformation of these businesses as they adapt to the market's needs.

Creating a partner ecosystem means creating an environment where the public sector can count on not only one, but many suppliers. This leads to a system within which everyone can contribute, share equal benefits in return and foster completion

Public sector's full support is crucial in the digitalisation process

From the outset, Hamburg's public sector was not only in favour of, but also actively encouraged the city's digital transformation. This meant having strong support from the city's administration throughout the digital transformation path, making the process much easier, smoother and quicker. With such a transformation, the public sector recognised two crucial aspects from the start: the involvement of local businesses and citizens.

Support of local businesses and citizens is crucial to achieve digitalisation

The former has been clearly seen in all the steps towards Hamburg's digitalisation: Hamburg has involved local businesses, making them aware of the city's digital needs and supporting the transformation of these businesses to adapt in line with the market's needs. The latter has been driven by a willingness to make people's lives easier and more comfortable (e.g. smart traffic, smart port solutions, etc.).

Transparency as a factor creating equal opportunities in the digitalisation process

Transparency is a key pillar for the digitalisation of a city. Hamburg has been the first German state to implement a law in this field. For instance, in the case of Hamburg, the MoU between the city and Cisco, aiming to create a partner ecosystem, was published online. Creating a partner ecosystem means creating an environment where the public sector can count on not only one, but many suppliers. This leads to a system where everyone can contribute, share equal benefits in return and foster completion.

Being transparent also means that most of the data concerning the public sector are available to everyone, both businesses and citizens. On the one hand, this means that data must always be up-to-date, but on the other hand, the data available may open up business opportunities for local companies.

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Key Recommendations

Political support is crucial throughout the digitalisation process

If a city is looking to become digital and smart, having the public sector's political support is crucial. In the experience of Hamburg, as well as in many other cases, such political support has made the process smoother and faster, while benefiting various kinds of local stakeholders.

“Digitisation is a citywide task. We want to link projects and processes across and beyond administrative boundaries. We see ourselves as a central contact for both the public and strategic partners, such as entrepreneurs” –

Christoph Krupp, Secretary of State of the Senate

As demonstrated by the successful case of Hamburg's digitalisation, businesses, citizens and their needs should always be at the centre of the city's digital transformation. They will only support it if they can see the benefits offered by this transformation. In such a transformation path, a city's transformation should be guided by the following question: how can we use this city, while enhancing people's lives?

“The real challenge of the digital transformation process is not about goal setting. Rather, it is about adapting the everyday activities and decisions taken by the public sector to such a process” –

Carsten Brosda, Commissioner of the Free and Hanseatic City of Hamburg for Media

Awareness of future opportunities can boost the digitalisation process

Involving local businesses, especially start-ups, and making them aware of the opportunities deriving from the digital transformation is key to success. This transformation can only happen if these businesses are involved, as a city cannot even consider going digital based exclusively on public funding.

Furthermore, only by showing local businesses how they can benefit from the digitalisation process is it possible to gain their support during such a process. In this regard, programmes aiming to raise awareness about digital opportunities and citizens are of vital importance.

For instance, Hamburg established academic training centres to prepare their students for the challenges and opportunities of the digital transformation (besides the University of Hamburg, the Medien Campus Finkenau promotes interdisciplinary exchanges in the field of media and IT).

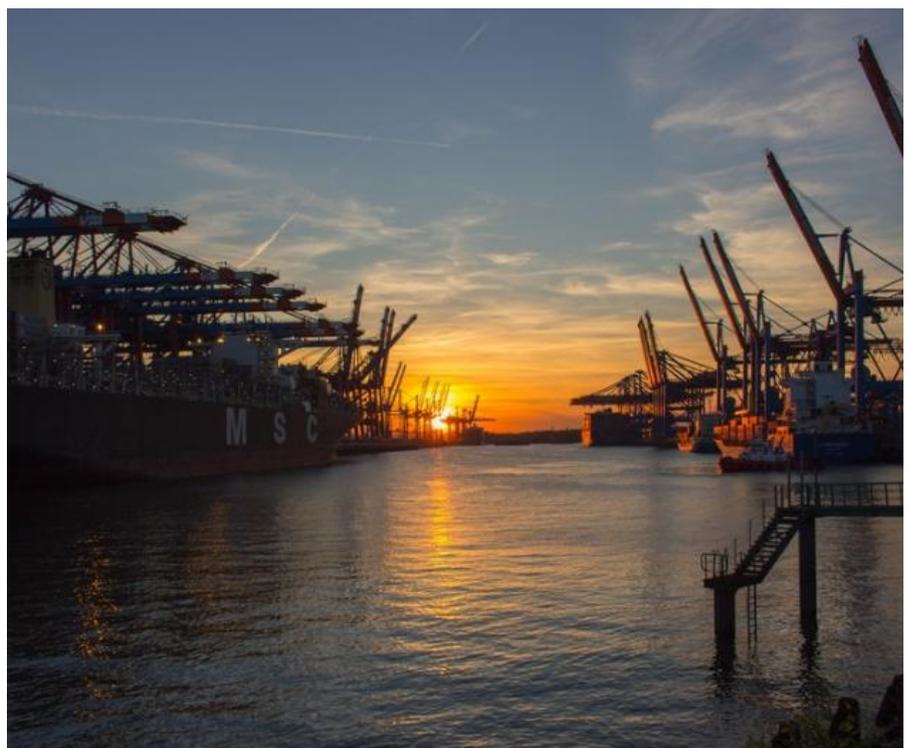
As demonstrated by the case of Hamburg, a city can succeed with its digital transformation process if all businesses and citizens can benefit from it equally.

Transparent ecosystem benefits all the stakeholders involved in the process

Building a transparent ecosystem, which provides equal opportunities for everyone, is therefore crucial since it encourages all stakeholders to support and actively engage in the digital transformation process. All the cities around the world are now involved in digitalisation processes.

However, from a comparative exercise, it is clear that each city has embarked on a digitalisation process that is unique and differs from other cities from many perspectives. As a result, it is not easy to create a blueprint for urban digitalisation processes, since these processes can vary significantly from city to city.

Nevertheless, there is one aspect that is present in the digital process for all cities and this relates to the public sector's willingness to embrace a holistic approach, including different stakeholders during the transformation and making sure that the digital opportunities offered by the transformation are not missed.



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Key Recommendations

Category	Role of the stakeholder
Local government 	<ul style="list-style-type: none"> Support the digital transformation as much as possible, not only by providing local businesses with investments, but also by setting a clear digital strategy The digital strategy has to be centred around the needs of businesses and citizens Create a system that is transparent and open, where all businesses can benefit from the digital transformation
Universities/ Research centres 	<ul style="list-style-type: none"> Strengthen the creation of a digital ecosystem around academia Strengthen digital competencies (e.g. through specific programmes and projects seeking support from local tech champions) Create networks with other universities and local businesses, as well as creating university spin-offs Retain and attract digital talents (e.g. through specific programmes implemented in universities)
Businesses 	<ul style="list-style-type: none"> Innovate, create and apply digital technologies Collaborate with other stakeholders from the digital ecosystem Traditional companies should seek support for the application of digital opportunities Experiment in a cooperative environment Tech companies should support traditional companies with their digitalisation efforts
Clusters 	<ul style="list-style-type: none"> Gain a deep understanding of your businesses Inform local stakeholders about the strengths and needs of your businesses Organise regular meetings with other clusters and local businesses
Incubators/ Accelerators 	<ul style="list-style-type: none"> Connect businesses with relevant stakeholders to enable their digital transformation Discover and exploit digital transformation opportunities for local businesses Engage a shift from focus on individual entrepreneurs to collaborative entrepreneurship (entrepreneurs in an innovation ecosystem)

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